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STATEMENT TO THE COMMITTEE ON FOREIGN AFFAIRS

CONCERNING H. R. 4502

May 7-8, 1946

Ву

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HARRY B. Friedepod. M.P. President and Disector of Desearch Technical Ageistant Citorical Frances of Medicines Tam submitting herewith a statement prepared for incorporation into the records of this Congressional Hearing on H. R. 4502, a bill introduced in the House of Representatives by Mr. Neely on October 25, 1945.

My presence here is for the purpose of testifying to the worthiness of the Bill that is now under consideration. This opinion has been based on a careful analysis of the factual evidence, which I am about to present. It is my hope that these data will impress you similarly, and that they will help to enlist your unequivocal support of the Neely Bill.

The cancer problem, with which the nation is confronted, has many important facets. For our present purposes, this discussion is being limited to a consideration of the facts that may be grouped into four main catagories:

- I. The Social Significance of Cancer,
- II. Present Facilities for Cancer Research.
- III. Existing Problems in Cancer Research.
 - IV. A Proposal for the Organization of Government Action Against Cancer.

I am submitting herewith a statement pro-

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II. Present Facilities for Cancer Research.

III. Existing Problems in Cancer Research.

IV. A Proposal for the Organization of

Government Action Against Cancer.

I. THE SOCIAL SIGNIFICANCE OF CANCER

The appalling nature of the mortality statistics concerned with cancer are now a matter of record. The figures, which were published in the Bureau of Census Reports for 1942 to 1944, inclusive, are sufficient to strike terror into anyone's heart. We are told that a mysterious killer, who comes and goes without significant medical restraint, wiped out over a half million fellow Americans during the three years of World War II as compared with 273,000, who died in battle while engaged in an avowedly dangerous job. The inference is clear. You have already heard testimony to the effect that an estimated 17,000,000 Americans now living will die of cancer. It is paradoxical that such figures, sometimes by their very magnitude, may fail to impress us adequately enough. The point becomes more painfully clear, however, when one realizes that twenty Americans died of cancer during the last hour, and one will die every three minutes while I am talking to you.

What are we doing about it? Are the countermeasures commensurate with the magnitude of the disaster,
which lies in wait for one out of every eight of us? In 1946
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measures commensurate with the magnitude of the disaster, which lies in wait for one out of every eight of us? In 1946 the National Foundation for Infantile Faralysis raised almost cloven million dellars to fight a disease that attacked only

12,249 persons last year and killed not over 1100. Please note: No one questions the wisdom of spending every dollar that is necessary to stamp out the scourge of infantile paralysis. It is tragic and incongrous, however, that the effort to eradicate cancer, which is a far greater menace to mankind, has by comparison received so little support up to the present time. The American Cancer Society estimates that only \$1,500,000 a year from public and private sources is now being devoted to cancer research in the United States. This is chicken feed when considered in relation to the magnitude of the cancer problem and the number of lives which are at stake.

national emergency by such diseases as smallpox or leprosy just imagine what their reactions would be. As a matter of fact we have just had a demonstration of what the public would do in such circumstances. A few weeks ago, one or two cases of smallpox appeared in a West Coast city. Within a matter of a few hours hundreds of thousands of frantic citizens were lined up to receive the protection of vaccination, not only within the city, but in coastal communities 1000 miles away. Within a few days the supply of smallpox vaccine on the West Coast was all but exhausted, and emergency measures were

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If our people were confronted with a similar national emergency by such diseases as smallpex or leprosy just imagine what their reactions would be. As a matter of fact we have just had a demonstration of what the public would do in such circumstances. A few weeks ago, one or two cases of smallpox appeared in a West Coast city. Within a matter of a few hours hundreds of thousands of frantic citizens were lined up to receive the protection of vaccination, not only within the city, but in coastal communities 1000 miles away. Within a few days the supply of smallpox vaccine on the West Coast was all but exhausted, and emergency measures were

*Americans were earmarked to die of leprosy would we accept the fearful news and fail to react by mobilizing our scientific forces for an all-out attack? Those who die of cancer are just as dead as those who succumb to smallpox or leprosy.

It is difficult to reconcile the apparent indifference of the public to the menace of cancer, as compared with its violent reaction to a threatened epidemic of smallpox. The knowledge that smallpox is contagious and deadly undoubtedly accounts, at least in part, for the apprehension and dread with which a potential epidemic of this disease is regarded. The knowledge that one can be protected against smallpox must be another factor, which creates an intense interest in protective measures. It is my impression that the layman is unaware of the fact that certain animal cancers, which resemble those of human beings, have been proved to be contagious, and that cancer is not a hopeless disease which is the equivalent of a death sentence. These misunderstandings may account for the apparent apathetic attitude. which seems to have numbed and paralyzed public opinion for thousands of years. Those of us who practice clinical medicine are aware of the public's state of mind, which

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accepts cancer as an inevitable curse of mankind. This hopelessness, born of superstition, is now in the process of being dispelled. When the public learns that cancer is a contagious transmissable disease in animals, it will demand to know whether human cancers can be similarly contracted. When the public learns that a high calorie, high carbohydrate diet predisposes mice to the development of certain types of cancer, it will show a strong interest in the investigation of this point in human beings, especially when it becomes aware of the fact that cancer is more prevalent among obese people than those of normal weight, and that the incidence of cancer among diabetics, who are notoriously overweight, is much higher than in the population at large. When the public learns that animals are being immunized successfully against cancer, I suspect that its reaction will be much the same as that which it has shown in the case of smallpox.

These avenues of approach to the solution of the cancer problem have just been opened. They are yet to be explored. A new hopefulness lies before us, and the public will not be slow to ask for an all-out effort on the part of the scientists of this nation. When the news reaches our citizens, they will want to see to it that the proper facilities for research are placed at the disposal of the men

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 qualified to solve the problem of cancer prevention and cure.

II. PRESENT FACILITIES FOR CANCER RESEARCH

The present facilities for cancer research are pitifully limited. The tribulations and obstacles that beset scientists, who are attempting to solve the enigma of cancer, are disheartening and discouraging. Wholly inadequate sums of money have been and are now available for the laboratory space and special types of scientific apparatus that are essential for the proper conduct of modern research on cancer. It is a well known fact among those who work in this field, and my own experience is identical, that certain aspects of the cancer problem are not being investigated and cannot be investigated because money is not available for the purchase of specialized scientific instruments. It has been my experience that the limited funds, which are allocated for cancer research, are earmarked usually for salaries in the form of stipends or fellowships and for laboratory animals and chemicals. Donors of such monies take it for granted that the university, at which the work is to be done, will provide the scientific equipment, whereas those who have to juggle university departmental budgets can

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testify to the fact that this is wishful thinking in the ordinary course of events. If this is true of equipment costing several hundred dollars, it is clear what happens in the case of an instrument such as the infra-red spectro-photometer which costs about \$10,000.00. Important avenues of approach to the perplexing problems of cancer research are thus left unexplored. At best, relatively infinitesimal progress is made by an occasional small group of scientists, who secure such instruments through a fortunate windfall or can negotiate the occasional use of such an instrument from a nearby industrial organization.

In addition to these handicaps within the laboratory are the stringent economic straits and the uncertainty of continuous employment with which the laboratory scientists are confronted constantly. Highly trained research investigators and their families usually live on a mere pittance. This is a matter of common knowledge and of specific discontent in university circles. Fellowships and grants-in-aid generally range between \$1,200.00 and \$2,500.00 per year except in the case of professors, who may be paid \$4,000.00 to \$5,000.00 in special circumstances. Industrialists frequently express amazement at the financial remuneration that constitutes the only means of livelihood of highly

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trained scientists. They point out that their secretaries and office assistants enjoy a higher standard of living: Even if salaries for research people were more adequately commensurate with their training and ability they would have no real peace of mind, and sustained interest in their research problems would be impossible in most circumstances. Research funds and stipends are available ordinarily for only a year or two because the sources which supply them have limited funds at their disposal and feel that some other worthy research project should be supported also. Thus the original grant of funds dries up and the work is at an end unless a new donor can be interested. Consequently the scientist spends a good portion of his valuable time worrying about and searching for a fresh source of economic support for himself and his experiments. The situation which I have been describing is being duplicated in one form or another all over America in every university laboratory whereever scientists are devoting their energies, interests and special training to the many aspects of the cancer problem. Can adequate progress be made under such conditions?

As a matter of fact the knowledge of this regrettable situation makes it possible for industrial organizations to pose a constant threat to the continuity of

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potentially important research projects. No one knows how many men and women, who have spent years acquiring scientific know-how, finally are driven out of the field of cancer research into more lucrative positions in industry because of the inadequate laboratory facilities that have hampered their research programs, because of the economic lifficulties that make it impossible for them to raise and support their families, and because of the year to year uncertainty which characterizes most research appointments in universities. So far as I know there are no long-term commitments, say for a guaranteed ten year period of research, in any grants for cancer research that are now available.

have the appearance of generalizations unsupported by evidence, permit me to tell you about a specific case with which I happen to be familiar. It is typical of the situation with which a majority of cancer research men are faced. The investigator, whom I have in mind, was working at one of our outstanding universities. As so often happens, his work, although originally not connected with the cancer problem, finally moved in that direction. By 1937 this scientist was clearly embarked upon a study of an important phase of the cancer problem. A university grant of \$1,200.00 launched the

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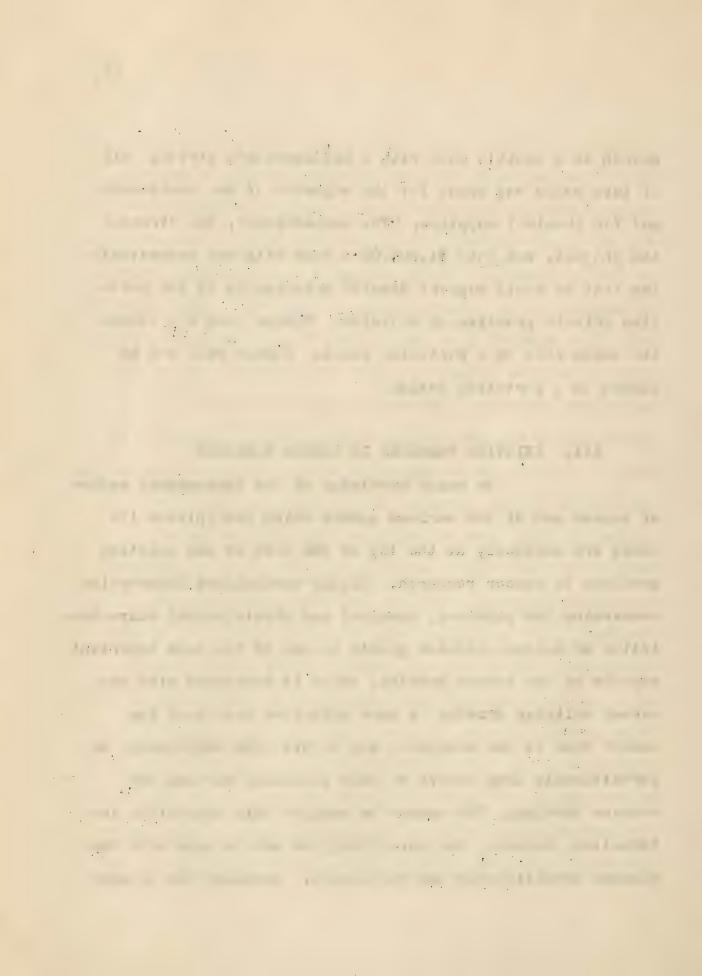
have the appearance of generalizations unamported by evidence, permit me to tell you about a specific cras with which I happen to or femiliar. It is typical of the situation with which a majority of concer research man are freed. The investigator, when I have in mind, was working at me of our outstanding universities. As so often happens, his ork, although originally not connected with the concer problem, finally moved in that live city with the concer problem, tently and rkel upon a study of on important phase of the learnly and rkel upon a study of on important phase of the concern problem.

project into its first year. So promising was the progress and so enthusiastic were the letters written in support of a further request for money that a grant of \$2,300.00 per year for two years was made available from another research fund in the university. The Directors of the fund that originally supported the investigation, adopted the policy of shifting their support from one project to another in the belief that as many as possible of those who knocked at the door should be encouraged in their research endeavors. The Directors of the second fund came to the same conclusion when a request for an extension of the grant was made at the end of two years, in spite of unusually strong letters of recommendation from the heads of two departments in the medical school, who painted to the list of creditable publications which had resulted from the grants-in-aid. meantime, having foreseen the possible outcome of his request for further support, this investigator took hat in hand and went begging for private funds. What was the net result? Because of its limited funds, the university had appropriated a total of \$5,800.00 for the research project over a period of three years; the private donations finally totaled \$15,000.00 for the succeeding three years. amounted to \$20,800.00 to finance six years of cancer re-

project into its first year. So promising was the progress and so onthusinstic were the letters written in support of a further request for money that a grant of \$0,300.00 per year for two years was male available from an tuer resourch fund in the university. The Directors of the fund that original ly supported the investigation, alogted the policy of shifting their support from one project to mother in the belief Tool of the fixed as presided to seldisery as when an that should be encouraged in their research enleavers. The Directors of the second fund come to the same conclusion when a request for an extension of the grant was made at the end of two years, in spite of unusually strong letters in recommendation from the heads of two lapartments in the medierl school, who printed to the list of creditable pubfir-ni-singre odd mora (odluson and doish encided) maintime, having foreabon this possible autorms of his request for further support, this investig tor took hat in hand and west begging for private funds. What was the not result? Because of its limited funds, the university had appropriated a total of \$5,800.00 for the research project over a parist of three yours; the private luncions finally total \$15,000.00 for the succeeding three years. That mounted to \$20,500.00 to finance six years of encer research at a snail's pace with a Lilliputian's strike. All of this money was spent for the salaries of two assistants and for chemical supplies. The investigator, who directed the project, was paid \$1,000.00 a year with the understanding that he would support himself principally by the partitime private practice of medicine. Cancer loes not attack the human race on a part-time basis. Cancer will not be licked on a part-time basis.

III. EXISTING PROBLEMS IN CANCER RESEARCH

An exact knowledge of the fundamental nature of cancer and of the various agents which precipitate its onset are obviously at the top of the list of the existing problems in cancer research. Highly specialized information concerning the physical, chemical and physiological characteristics of normal cellular growth is one of the most important aspects of the cancer problem, which is concerned with abnormal cellular growth. A more effective treatment for cancer than is now available may be hit upon empirically or fortuitiously long before we know precisely how and why cancers develop. The sooner we acquire this scientific information, however, the more likely we are to cope with the disease intelligently and rationally. Although the present



treatment of cancer is a credit to the ingenuity of research scientists, it is still only a modern version of that employed by the Greeks about 2,500 years ago. The ancients cut out or burned out what they termed "anarchistic cells." It is important to realize, furthermore, that the magnificant progress which has been made along therapeutic lines, resulted primarily through the phenomenal development of the neighboring basic sciences of physics and chemistry. It is generally acknowledged by students of cancer research that much of the progress toward the solution of the cancer problem will be made by studies in these and the related fundamental fields of biological and immunological research.

Mention has been made already of the important bearing which nutrition may have on the control and prevention of cancer. Dr. Van R. Potter of the McArdle Memorial Laboratory for Cancer Research has stated in this connection that the answer to the prevention of cancer in human beings "may consist in eating no more than we need and in keeping physically fit, with the addition of proper medical care so that any chronic irritations are eliminated." Why and how do dietary indiscretions and lack of proper exercise predispose an animal to certain types of cancer? Is this strictly applicable to human cancer? These and other

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questions remain to be answered -- and the answer must be pressed for by a competently organized and well financed group of scientific specialists in nutrition.

I referred, earlier in this testimony, to the fact that a cancer virus has been demonstrated in animal tumors and that this type of cancer is consequently contagious. Dr. Robert G. Green, Professor of Bacteriology and Immunology at the University of Minnesota, has discovered that a serum, which can be prepared from rabbit's blood, kills the cancer cells of this tumor. The first step in the development of this serum is to extract the cancer virus from the tumors of cancerous mice. The substance containing the cancer virus is obtained finally in the form of a whitish powder. The injection of this virus-bearing material, into the same species from which it was isolated results in the formation of a tumor. If, on the other hand, it is injected into another species, such as the rabbit, the virus stimulates the production of protective antibodies, which kill cancer cells in mice instead of stimulating their growth.

The development of an immunity against cancerous growths in rats has been observed by Dr. S. Russ and Dr. G. M. Scott, who published their findings in a

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Immunology at the University of Minnesets, has discovered that a serum, which can be prepared from rabbit's blood, kills the example of this tenor. The first step in the development of this serum is to extract the cancer virus from the tumors of cancercus mice. The substance containing the cancer virus is obtained finally in the form of a waitable payder. The injection of this virus-bearing material, into the same species from waith it was isolated results in into the same species from waith it was isolated results in

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recent issue of the British Journal of Radiology. They obtained a cell-free extract of fluid taken from tumors, which happened to regress in size spontaneously or became smaller because of x-ray therapy. The immunity was permanent. If they prepared a similar cell-free extract from a growing tumor, on the other hand, it stimulated tumor growth when injected into normal rats.

ments have been reported by Drs. George W. Wooley and Clarence Cook Little of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine. They found that castration, which produces cancer of the adrenal cortex in female mice, can be relieved by the administration of a synthetic female hormone known as diethyl stilbestrol. In one inbred strain of female mice, they produced cancer 100 per cent of the time by sterilization, and prevented it with equal success through the use of this hormone.

These are but a few of the brilliant advances which are being made on the cancer front. I regret
that the limited time at our disposal prevents me from developing this aspect of the cancer problem in greater detail.
You would hear then of the important contributions of such

A similarly significant series of experi-

ments have been reported by Drs. George W. Wooley and Clarence Gook Little of the Rosces B. Jackson Hemorial Labratory at Ber Harber, Maine. They found that castration, which produces cancer of the adress cortex in female mice, can be relieved by the administration of a synthetic female hormone known as distinct stilbesure; In one inbridistrain of female attain by storilization, and produced cancer 100 per cent of the time by storilization, and provented it with equal success time by storilization, and provented it with equal success

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men as Dr. William U. Gardner, Dr. Charles W. Hooker, Dr. R. G. Meader, Dr. George M. Smith and Dr. L. C. Strong at Yale University, of Dr. Charles Huggins and Dr. Carl R. Moore at the University of Chicago, of Dr. R. R. Spencer, Dr. Howard B. Andervont, Dr. Jesse P. Greenstein and Dr. Nichael B. Shimkin at the National Cancer Institute at Bethesda. I have chosen these names at random from a formidable list of equally able investigators in order to re-emphasize a fact which is already well known to you; namely, that well established scientific nuclei dot the country at strategic points in relation to centers of learning. These are academic citadels from which the attack on cancer can be launched effectively and expediently.

of cancer research, which enjoys a high priority among investigators of cancer. The development of diagnostic methods for the earliest possible detection of cancer is of the utmost importance today because of the limitations of present forms of therapy, which must be instituted early in the game if they are to be effective at all. As a matter of fact, the early diagnosis of cancer will continue to be essential even after the nature of this disease is thoroughly understood. It will always be necessary to make the diagnosis as

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R. G. Meader, Dr. George M. Sanch and Dr. L. G. Strong at Yale University, of Dr. Charles inggins and Dr. Garl R. Mours at the University of Whicase, of Dr. R. R. Spencer,

Or, itchael 3. Thirkin at the National Janeer Institute at Setaceda. I have chosen these names at random from a formidable last of equal, y acts investigators in order to re-expinatize a fact raich is already well known to you; namely, that well established soi miffic musted dot the country at strategic points in relation to centers of learning. These are academic oit.dels from which the attack on cancer can be launched effectively and expediently.

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early as possible in order to treat it effectively before it spreads throughout the body and gets beyond control.

In recognition of the importance of this aspect of the cancer problem, and because there was a dearth of organized cancer research on the West Coast, a group of public-spirited citizens and research-minded physicians organized the Cancer Research Foundation of California on April 26, 1945, when Frank M. Jordan, Secretary of State of the State of California, endorsed the Articles of Incorporation. This organization was formed under the laws of the State of California as a non-profit, non-stock corporation under the provisions of Division I, Part 4, Title 12, Article 1 of the Civil Code for scientific, charitable and educational purposes. The Articles of Incorporation stated, among other things, that the main purpose of the Foundation was to develop cancer research projects and methods for the early diagnosis and control of cancer.

An important body of knowledge has accumulated from these investigations and particularly from those that have flourished independently at other medical centers, principally the Memorial Hospital in New York City. It is now known that one type of cancer growth may, in certain circumstances, be detected long before it becomes obvious to

State of California, andorsed the Arctelsa of Incorpor-

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the physician who examines a suspected case by the most careful clinical procedures. In the case of cancer of the cortex of the adrenal glands, one may make the diagnosis in most cases by quantitative and qualitative analysis of certain fatty substances, called ketosteroids, which are excreted into the urine of normal, as well as afflicted, individuals. In the case of cancer of the adrenal glands, these steroid substances often change quantitatively in a characteristic fashion which can be recognized chemically. Laboratory evidence, coming mainly from the Memorial Hospital, indicates furthermore that there may also be a shift from the normal in the urinary steroid pattern in other forms of cancer. The nature and extent of these changes are in the process of being explored experimentally.

In this connection it may be of interest to mention that a chemical test for cancer of the prostate gland has been in use for some years. In most patients with this disease there is an increase of the acid phosphatase in the blood serum. If the tumor has spread through the blood and invaded the bony skeleton, the alkaline phosphatase of the blood serum is increased likewise. A biological diagnostic test for another type of cancer also has been proved useful clinically. In this case the tumor, which can be detected,

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is known as a chorionepithelioma. It develops either in the male sex glands or the genital tract of the female, which secrete a hormone that is found in the urine. The test is done on a rabbit, and is reliable if it is interpreted accurately.

That which is already known about methods for the early diagnosis of cancer is a mere drop in the bucket compared with what remains to be learned.

The challenge is there, but it cannot be accepted because the physical facilities and money, which are necessary, are not available.

How can this situation be remedied? What can be done to clear the decks for action?

IV. A PROPOSAL FOR THE ORGANIZATION OF GOVERNMENT ACTION AGAINST CANCER.

The incorporation of the Cancer Research

Foundation of California represented a clear answer by West

Coast people to the question, "Is organized research in cancer necessary?" That question was answered much earlier,

and in a magnificent way, by the Memorial Hospital Group of
scientists and by other important centers, such as the Roscoe

B. Jackson and the McArdle Memorial Laboratories.

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The recent expansion of the activities of the American Cancer Society in association with the National Research Council of the National Academy of Sciences is the expression of an identical tendency. All over the country laymen as well as scientists are becoming acutely aware of the fact that what has been done already to encourage cancer research is only a minute step in the right direction. This tiny step forward can be and must be multiplied a hundredfold if our efforts are to be successful. We need the stride of a giant to bridge the gap of our relative ignorance about the whys and wherefores of cancer. If we are to achieve our ultimate aim -- the control and cure of cancer -- our scientific forces must be mobilized; they must be organized and coordinated effectively; and they must be given enough money to do what has to be done without restraint. We must save lives, not money; we must spare suffering, not expense.

This vision must be translated into action on much the same scale as that which served so successfully in solving the know-how of the atomic bomb. There is only one agency which can undertake such a gigantic project, and that agency is the Government of the United States.

The officers and directors of the Cancer Research Foundation of California have instructed me to

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place them on record to the effect that they are wholeheartedly with the sponsors of Government Action Against Cancer in their support of the Neely Bill.

There is an urgent need for taking action on the Neely Bill at this session of Congress. The history of the evolution of the Kilgore-Magnusen Bill, which has our complete support, suggests the desirability of avoiding the many vicissitudes to which the various initial legislative efforts were subjected.

the Mobilization of Science in the fall of 1942. It appeared during a period of unprecedented national emergency. For this reason, as well as others, which are now well known, the bill did not survive. It was not until 1945 that a number of other bills, S.825, S.1248, S.1285 and S. 1297 were proposed in rapid succession for the same general purpose. The overlapping objectives of these four Senate bills necessitated their further study and coordination. It then took about seven months more to compose a bill that met with the approval of scientists, government agencies and a group of Senators actively interested in science legislation, and to get this Bill, S.1850, through committee. For similar reasons there could be comparable delays in the consideration

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of the Neely Bill. The experience which has been gained in preparing and perfecting S.1850 should stand us in good stead now. A delay in acting on the Neely Bill must be avoided, if it is at all possible, because the need for legislation is imperative. Time passes all too quickly for those who feel the heavy hand of cancer.

It is well for us to think of death at the hands of cancer in terms of murder -- not in the abstract as a disease which is fatal.

Cancer differs from all other afflictions of men. Cancer cells live and breathe. They are alive. In tissue cultures one may see them move like an amoeba that thrusts forth blunt fingers of protoplasm to explore the space about them. These are the means of locomotion that cancer cells employ. When they invade the neighboring healthy tissues and penetrate the walls of blood vessels, the circulation carries them to distant parts of the body where they set up their death-dealing outposts. Cancer is a dynamic living force that grows at the expense of the man, woman or child of which it becomes a part. The only thing it lacks is the brain with which to plan its deadly advance. That is the edge we have on cancer, if we will but use it without the handicaps that have fettered it heretofore.

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These handicaps are recognized by everyone who has made a study of the situation. The truth of the matter is that we have been doing a lot of wishful thinking -- we have been day dreaming. What else could we do when the physical and financial facilities for cancer research were lacking. The sponsors of Government Action Against Cancer could well turn to Longfellow for a slogan: "all the means of action -- the shapeless masses, the materials -- Lie everywhere about us", and to Thomas Carlyle, who wrote, "the tools to him that can handle them."

The sponsors of Government Action Against Cancer are proposing in the Neely Bill that the Government of the United States make these tools available to the scientists that can handle them, so that shapeless masses and materials, which lie everywhere about us, can be used effectively in a coordinated fashion.

The sponsors of Government Action Against Cancer are proposing that the Government of the United States create an agency, which will be empowered to go about its business with the grim intent of killing cancer before cancer kills 17,000,000 of us who are now living.

How are we to go about implementing an organization on the vast scale that the cancer problem de-

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mands?

Others, who are being heard at these hearings are in a better position than I to testify concerning
the type of agency which should be set up to administer and
distribute the funds that are asked for in this bill.

I cannot refrain, however, from adding a footnote to their more seasoned opinions. It is my impression that the purposes of the American people would be served best by concentrating cancer research in a few strongholds of science, rather than in diluting the effective force which \$100,000,000 could exert in the fight against cancer. A sum of \$1,500,000 might be allocated during the first year to each of ten academic institutions or scientific organizations that are in a position to expand existing facilities to undertake this gigantic task. This money could be spent for setting up the proper physical facilities and scientific equipment and for engaging the well-paid services of competent research workers in biophysics, biochemistry, biology, bacteriology, immunology and the neighboring sciences that have a bearing on this problems

Funds amounting to \$850,000 a year for a period of ten years might then be allocated to each of these institutions in order to finance their projects on the gi-

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gantic scale that the situation demands. This action would have the effect of striking hard and often in a coordinated fashion at the very heart of the cancer problem.

Because of the special character of the research problem, and because of the magnitude of the scale on which it must be handled, it would seem best to create an independent agency, such as a National Cancer Foundation. Such an agency could and should integrate its efforts and closely cooperate with the proposed National Science Foundation. Their aims do not clash; they supplement one another. The National Science Foundation is dedicated to a vast program of research in the basic sciences without reference to a specific disease. The National Cancer Foundation, on the other hand, is being suggested for the special purpose of cancer research. Whatever research in the basic sciences is done by a National Cancer Foundation would be directed specifically to the investigation of cancer. The research program of the basic science groups, working under the sponsorship of the National Science Foundation, would undoubtedly help speed the work of the cancer specialists. If each organization is permitted to develop independently, a certain amount of desirable overlapping of effort is bound to occur. According to Col. Stafford Warren's experience with

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the atomic bomb project, this interdigitation scarcely ever took the form of mere duplication. In most instances the experimental results served as a check upon one another, and in many cases the data were interpreted from different points of view. He concluded that this set-up served as a healthy stimulus to all who were concerned.

An alternate possibility, which naturally suggests itself, is that of incorporating a National Cancer Foundation into the present plans for a National Science Foundation. Not being familiar with the intricacies and problems involved in preparing such legislation, I am not in a position to hazard a guess as to the possibility.

I can foresee one point, however, which might come up for discussion if it is suggested that the Neely Bill be attached as a rider to the Kilgore-Magnuson Bill. It might look as if this were a case of the tail wagging the dog, since the Neely Bill asks for \$100,000,000 for cancer research alone, whereas the Kilgore-Magnuson Bill proposes an appropriation of \$40,000,000 for research in all aspects of the natural and social sciences. As I understand it, however, the \$40,000,000 appropriation is being proposed for the first year of operation of the National Science Foundation. Eventually other equally large, or larger, sums

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will be appropriated annually. On the other hand, the proposal of an appropriation of \$100,000,000 for the purposes outlined in the Neely Bill is the total sum thought necessary for an all-out attack on cancer over a period of years. It seems to me that no more than \$10,000,000 will be needed in any given year. Judging from the progress which has been made on the meager sums of money that have been expended on cancer research up to this time it seems more than likely that the sum of \$100,000,000 will be adequate to complete the job, if it is well organized.

question is debated, someone will wonder whether the American Cancer Society should be given control of the expenditure of these funds. Such a step would be inadvisable in my opinion. The American Cancer Society has done a magnificent job under trying circumstances. It has done much to educate a public that was essentially unaware of the dangers of cancer before it tegan its pioneer work. The American Cancer Society established clinics throughout the nation so that people, who were worried about the possibility of developing cancer, would have trustworthy consultation. They arranged for eminent physicians to make their skill available to the relatively poor of countless communities, and they help-

will be appropriated annually. On the other hand, the proposal of an appropriation of \$100,000,000 for the purposes outlined in the Neely Bill is the total sum thought necessary for an all-out attack on cancer over a period of years. It seems to me that no more than \$10,000,000 will be needed in any given year. Judging from the progress which has been made on the meager sums of money that have been axpended on cancer research up to this time it seems more than likely that the sum of \$100,000,000 will be adequate to complete the job, if it is well organized.

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ed to train younger doctors in the diagnosis and treatment of cancer. The American Cancer Society has specialized and done well in its specialty. The field in which it started still needs plenty of spadework. Let the American Cancer Society perfect its brain child. From what we know of the situation, it will have its hands full.

To ask the American Cancer Society to undertake the \$100,000,000 program proposed by the Neely Bill would be the equivalent of eating a hearty meal immediately after a Thanksgiving dinner with all the fixings. No one would or should want to interfere with the efficiency of the American Cancer Society, even though the thought is a well deserved compliment to its officers and directors who have guided its destiny so well up to the present time.

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I am bringing this testimony to a close with the hope that the evidence, which is being presented before the Committee on Foreign Affairs during these hearings, will be convincing enough to merit their serious consideration of the Neely Bill. I am glad to have had the privilege of appearing before this Committee as one of the National Committeemen of the sponsors of Government Action Against Cancer and to speak for the Neely Bill in the capacity of an officer and director of the Cancer Research Foundation of California.

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